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**Africa Research in Sustainable Intensification for the Next Generation  
ESA-project**

**Integrating Livestock Technologies in intensifying Mixed Farming Systems**

**Field activities report  
July 2019**

# Introduction:

This activity is concerned with Integrating Livestock Technologies in intensifying Mixed Farming Systems of Babti district through dairy cattle and poultry nutrition. The dairy research activities are being conducted in Long /Bashnet and Hysum villages in Babati district. The poultry research activities is being conducted in Matufa and Seloto villages in Babati district; Mwanya village in Kiteto and Mlali village in Kongwa districts. The main objective of the research project is better use of locally processed and formulated feeds for improved dairy cattle and poultry. The diets are being tested with improved breeds of both dairy cattle and poultry. The focus of our research activities July 2019 was to;

1. Select farmers for both dairy and poultry nutrition experiments

Assess the ability of selected farmers to participate in the experiments – in terms of animal structures, required experimental animals and if they can supply experimental feed resources.

1. Sensitize selected farmers about the experiments and prepare them to host the trials
2. Purchase and distribute experimental equipment’s, chickens and feeds
3. Identification and select farmers to participate in extension messaging using the MWANGA platform, explaining the study to farmers and having them to sign the informed consent research forms.

# Dairy nutrition research

## 2.1 Selection of farmers to participate in the experiment

This activity was conducted at Long/Bashnet and Hysum villages in Babati district. Farmers selection was done in collaboration with village extension officers and the project data clerk in respective villages. The exercise focused on the ongoing Africa RISING beneficiaries. However, a few new farmers who did into participate in Africa RISING before and who met the set criteria were selected. A meeting of selected farmers was organized to explain the study and their involvement to them. The criteria for selecting farmers was as follows:

1. Farmers with fairly good animal house/shelters, feeding trough/ feeders and watering trough/drinkers. This would allow measuring feed and water intake of animals
2. Farmers who have enough and are willing to provide feed resources like Napier grass and crop residues etc. for experimental use
3. Farmers who are willing to participate, provide own labour for research and allow other farmers to follow and learn form the trials

At the meeting the selection of experiment animals and breeds; housing and feed requirements was discussed. The following was agreement with farmers:

* Experimental animals:
  + Both local and cross bred cows should be known. Farmers must know which type of local cow they won. Those farmers with cross bred cows should have at least 50% and above.
  + Farmers should know the current milk production of individual animals
  + The lactation period of the cows must be known. Cows within the first 3 lactation period would be preferred.
  + Calving period of the animal should be known. Cows within the first 3 calving period would be preferred
* Feeds
  + Farmers were asked to estimate quantity of Napier grass they own. Those who did not have enough suggested sources of additional Napier grass
  + Farmers also estimated the amount of crop residue - maize stover and bean haulms they had stored for experiment. Strategies for additional amount if needed was discussed
* Dairy cattle housing and feed troughs was discussed. These are important for the purse of measuring feed and water on farms

## 2.2 Key agreements

* Overall, most farmers were ready to participate in research activity
* A total of 34 farmers were selected to participate in the study (Appendix 1)
* All farmers have seasonably enough Napier grass for the experiment
* Some farmers who had enough Napier grass but didn’t have cows within the set criteria, agreed to donate the Napier grass to experimental farmers
* Crop residues
* Maize stover is available in plenty as July was the harvesting period
* Feed troughs contractions is a challenge and needs more emphases as about 80% of the identified farmers are having poor feed troughs and some were not having any at all and they feed their animals at the ground. Further discussion will continue on how best to solve the problem

# Poultry nutrition research

## 3.1 Selection of farmers to participate in the experiment

A total of 32 farmers were selected to participate in poultry nutrition experiment. The selection was amongst already recruited Africa RISING poultry beneficiary farmers basing on the following criteria;

1. Farmers should have poultry houses, feeders and drinkers
2. Farmers must be willing to offer the locally available feed resources like maize, maize bran and sunflower seed cake
3. Farmers must be willing to participate in research- provide labour and allow other framers to learn form their farms

The selected farmers were assessed individually to ensure that they meet all criteria standards through visits to their farms

## Procurement and delivery of chicks and feeds

A total of 1632 day old chicks were procured from AKM Glitter Company. The chicks were equally distributed to the four village sites (Mlali, Mwanya, Matufa and Seloto/Bermi) in Kongwa/Kiteto and Babati Districts. A total of 32 farmers (Appendix 2), eight from each village benefited from the chicks. Each farmer received 51 chicks. Alongside the chicks supplied each farmer received a feed and drugs package including

1. Feeds: 28kg of chick mash were given to 7 farmers and one farmer was left out as a control. The control farmer will feed chicks according to his usual farmer practice.
2. One packet of antibiotics per farmer
3. One packet of Vitamins per farmer
4. One packet each of New castle, Gumbolo and Fowl pox vaccines enough to vaccinate all chick in a site were distributed as per site. The vaccination will be given by the veterinary officer in the area.
5. Initial data on body weight for the chicks were recorded. Data on growth, mortality and brooding cost are being collected from the chicks in all farmers

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|  |  |
| Fig 1: Farmers at Matufa village receiving chicks, feeds and veterinary medicine as part of the delivery package | |

## 3.3. Brooder fabrication

Fabrication of improved chick brooders was done in Babati town as presented in Figure 2: The chick brooding box conserves heat generated by the chicks, hence reduces the cost for artificial source of heat like electricity or charcoal. It prevents chick from hurdling in corners and risking suffocating. One of the 8 experimental farmers was supplied with the improved chick brooder (Figure 3). In addition, a total of 4 improved chick brooders were fabricated and each of the village site was supplied with one for use and testing their applicability and later for training demonstration. Initial data on body weight for the chicks were recorded. Data on growth, mortality and brooding cost are being collected from the chicks in these brooders.

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|  | C:\Users\lmarwa\Desktop\PICHA FIELD 2019 JULY\Qwari and box brooder.jpg |
| Fig 2: Fabrication of improved brooders for raining day old chicks | Fig 3: An experimental farmer receiving an improved brooder with chicks at Qwari farmer |

## 3.4 Explore availability of local feed ingredients for diet formulation

The availability of local feed ingredients for diet formulation in Kongwa/Kiteto district was explored with farmers through group discussions. The available feed ingredients are maize, maize bran, sunflower seed cake, blood meal, vegetable waste and Grilicidia leaves. All farmers participating in the focused group discussion agreed to provide the local feed ingredients for diet formulation. Two farmers, Moshi Maire and Philemon Mwinjumbe were the identified and agreed to supply the Grilicidia leaves. These are among the Africa RISING beneficiary farmers from the *Grilicidia sepium* work.

## 3.5 Poultry Housing

Farmers from Kongwa/Kiteto district participating in the focused group discussion agreed to construct poultry houses using the locally available resources based on the Africa RISING poultry house design.

## 3.6 Training

Training was done to recruited data clerk on initial data collection. The designed data sheet (Appendices 5,6 and 7) were intensively elaborated to data clerk for efficiency data collection from the introduced chicks. Awareness was also done to experimental farmers for their collaboration in data collection. Farmers, extension officers and data clerk were also trained on day old chicks management at their early stage of live. A total of 58 farmers (22 females and 36 males) as per appendix 4, 4 extension officers and 4 data clerks from the four poultry villages sites (Matufa, Seloto, Mwanya and Mlali) were trained on chicks’ management (See details in July 2019 field report)

# Mwanga platform for dissemination of livestock messages

## 4.1 Sensitization of farmers about the research

Meetings with both dairy and poultry Africa RISING beneficiary farmers were held and they informed about the upcoming dissemination of technology messages through the MWANGA platform (Figure 4). The meetings were held in 8 villages sites of Babati district (Long/Bashnet, Sabilo, Shaurimoyo, Seloto/Bermi, Hysum, Matufa, Galapo and Hallu) and two village sites of Kongwa/Kiteto district - (Mwanya and Mlali) – see details in May 2019 field report

Farmers were explained about the extension messaging and requested to sign the research consent (Appendix 3). The consent was described to in detail them before being requested to volunteer to participate in the research (Figure 5). A total of 127 farmers (Appendix 4) were recruited to patriate in the extension messaging research.

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| C:\Users\lmarwa\Desktop\PICHA FIELD 2019 JULY\consent signing.jpg | C:\Users\lmarwa\Desktop\PICHA FIELD 2019 JULY\consent signing HALLU.jpg |
| Figure 4: Sensitizing famers about the extension messaging research at Long village | Figure 5: Isrel Sanka signing the consent form |

**Appendix 1: List of dairy farmers for extension messeging**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/No | Name of farmer | Sex of farmer | Village | Contact |
| 1 | Wema Ako | Male | Long | 0786123591 |
| 2 | Paulo Guse | Male | Long | 0782741741 |
| 3 | Teresia Joseph | Female | Bashnet |  |
| 4 | Patrice Richard | Male | Bashnet | 0788621022 |
| 5 | Reginald Richard | Male | Bashnet | 0789463534 |
| 6 | Katarina Michael | Female | Bashnet | 0783485197 |
| 7 | Mathayo Moshi | Male | Bashnet | 0682696397 |
| 8 | Mrs Kamala Lusian | Female | Bashnet | 786610586 |
| 9 | Felistian Muhale | Female | Bashnet | 0785132951 |
| 10 | Nicolous Basso | Male | Bashnet | 0685254188 |
| 11 | Sherwine Richard | Male | Bashnet | 0782699161 |
| 12 | Basnet mission | Male | Bashnet |  |
| 13 | Male | Bashnet |  |
| 14 | Maasay Wema | Male | Bashnet | 0686402228 |
| 15 | Joseph John | Male | Bashnet | 0787309123 |
| 16 | Jovita Mandoo | Female | Bashnet | 0784778655 |
| 17 | Lucina R. Makundi | Female | Bashnet | 0783796766 |
| 18 | Pasckalini Shauri | Female | Hysum | 0688652478 |
| 19 | Simon Melkiad | Male | Hysum | 0787187711 |
| 20 | Dawite Awako | Male | Hysum | 0784187535 |
| 21 | Petro Akonaay | Male | Hysum | 0688706082 |
| 22 | Odilo Faustine | Male | Hysum | 0786797894 |
| 23 | Nikodemus Hilari | Male | Hysum | 0692758877 |
| 24 | Rehema Shaaban | Female | Hysum | 0784210653 |
| 25 | Mch. Gobre | Male | Hysum |  |
| 26 | Marietha Faustine | Female | Hysum | 0685935181 |
| 27 | Simfrosa Raphael | Female | Hysum | 0786233721 |
| 28 | Tarsila Petro | Female | Hysum |  |
| 29 | Marselina Faustin | Female | Hysum | 0788101642 |
| 30 | Abel Adolf | Male | Hysum | 783047538 |
| 31 | Jacline Rashid | Female | Hysum | 0785059680 |
| 32 | Oliver Donald | Female | Hysum | 0688041595 |
| 33 | Gasper Joseph | Male | Hysum | 0785656010 |
| 34 | Gabriel Qambe | Male | Hysum | 0788878231 |

**Appendix 2: List of poultry farmers for extension messaging**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/No | Name | Sex | Village | District | Contact |
| 1 | Mwajabu Sadick | Female | Matufa | Babati | +255789683626 |
| 2 | Ajuaye Mrisho | Male | Matufa | Babati | +255685081999 |
| 3 | Hamisi Ipingika | Male | Matufa | Babati | +255684087519 |
| 4 | Hamis Salim | Male | Matufa | Babati | +255688133495 |
| 5 | Seleman Kombo | Male | Matufa | Babati | +255784212024 |
| 6 | Ally Sagili | Male | Matufa | Babati | +255684488890 |
| 7 | Janeth Chigome | Female | Matufa | Babati | +255763512429 |
| 8 | Yusufu Mangi | Male | Matufa | Babati | +255683534922 |
| 9 | John Qwari | Male | Seloto/Bermi | Babati | +255685375666 |
| 10 | Olais Lukumay | Male | Seloto/Bermi | Babati | +255759644490 |
| 11 | Magdalena Gervas | Female | Seloto/Bermi | Babati |  |
| 12 | Patris Sist | Male | Seloto/Bermi | Babati | +255689588454 |
| 13 | Asteria Joseph | Female | Seloto/Bermi | Babati | +255788968729 |
| 14 | Angela Bilasi | Female | Seloto/Bermi | Babati | +255682862125 |
| 15 | Samweli Sarga | Male | Seloto/Bermi | Babati |  |
| 16 | Andrea Mai | Male | Seloto/Bermi | Babati | +255784811025 |
| 17 | Marium Saimoni | Female | Mlali | Kongwa | +255752766581 |
| 18 | Christina Joseph | Female | Mlali | Kongwa | +255767376758 |
| 19 | Moshi Maile | Male | Mlali | Kongwa | +255759625178 |
| 20 | Marium Saimoni | Female | Mlali | Kongwa | +255752766581 |
| 21 | Ramadhani Ngiriye | Male | Mlali | Kongwa | +255755818599 |
| 22 | Maria Mguji | Female | Mlali | Kongwa | +255754549634 |
| 23 | Rehema Kaulule | Female | Mlali | Kongwa | +255769261603 |
| 24 | Roza Rashidi | Female | Mlali | Kongwa | +255755109853 |
| 25 | Stela Lucka | Female | Mwanya | Kiteto | +255788335884 |
| 26 | Mohamed Kaita | Male | Mwanya | Kiteto | +255683613509 |
| 27 | Amimu Hassani | Male | Mwanya | Kiteto | +255685044200 |
| 28 | Kamba Juma | Male | Mwanya | Kiteto | +255786035952 |
| 29 | Said Bira | Male | Mwanya | Kiteto | +255688257298 |
| 30 | Isaka Bakari | Male | Mwanya | Kiteto |  |
| 31 | Mohamed Ally | Male | Mwanya | Kiteto | +255692924511 |
| 32 | Hawa Juma | Female | Mwanya | Kiteto |  |

**Appendix 3: Informed Consent for Research Participants**

Project Title - /Extension messaging to farmers using MWANGA platform in Babati district, Tanzania

**Objective: To identify and disseminate livestock messages such as forage production and use, crop residue processing and use; and feed rations to assess effectiveness of these messages on farmers uptake of technologies**

* You have been invited to participate in this research because you are farmer involved in Africa RISING activities in Babati district, and the information provided by you in this questionnaire will be used for research purposes.
* You have the opportunity to ask questions about the research.
* You can contact the researcher within 2 weeks after this interview if you wish to withdraw. In such case, your data will be destroyed.
* Your participation in this research is completely voluntary and you do not have to take part if you do not wish. Once you receive the initial messages, you can review them and decide if you want to continue to receive them or not. You may decline to continue receiving messages at any time that you wish.
* The information provided by you during the assessment of the research will be used in such a way that it will not allow identification of your individual responses. Your responses will be treated in confidence and aggregated with data from other respondents so that it will not be possible to identify an individual respondent. Therefore, any statistics generated cannot be tracked to a particular company.

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ confirm that I have read and understand the statements above; and I agree with them

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In the presence of: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the Africa RISING Project

**Appendix 4: List of farmers who attended the chick management training**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/No/ | **Name** | **Gender** | **Village** | **District** | **Telephone contact** |
| 1 | Magdalena Gervas | Female | Seloto | Babati | +255685610094 |
| 2 | Asteria Joseph | Female | Seloto | Babati | +255788968729 |
| 3 | John Laurian | Male | Seloto | Babati | +255784682227 |
| 4 | John Qwari | Male | Seloto | Babati | +255685375666 |
| 5 | Olais Lukumay | Male | Seloto | Babati | +255759644490 |
| 6 | Vitalis Joseph | Male | Seloto | Babati | +255683868056 |
| 7 | Tadei Edward | Male | Seloto | Babati | +255682862125 |
| 8 | Abel M Diwi | Male | Seloto | Babati | +255786237696 |
| 9 | Andea May | Male | Seloto | Babati | +255784811025 |
| 10 | Patris Sist | Male | Seloto | Babati | +255689588454 |
| 11 | Mwajabu Sadick | Female | Matufa | Babati | +255789683626 |
| 12 | Mariam Christian | Female | Matufa | Babati | +255785653732 |
| 13 | Janeth Chigome | Female | Matufa | Babati | +255763512429 |
| 14 | Zuley Laban | Female | Matufa | Babati | +255784739530 |
| 15 | Julita Sota | Female | Matufa | Babati | +255786394224 |
| 16 | Selemani Kombo | Male | Matufa | Babati | +255784212024 |
| 17 | Obadia Juma | Male | Matufa | Babati | +255789565551 |
| 18 | Hamisi Salim | Male | Matufa | Babati | +255688133495 |
| 19 | Kaalfani Omari | Male | Matufa | Babati | +2557533904660 |
| 20 | Raphael Lucus | Male | Matufa | Babati | +255782405016 |
| 21 | Yusufu Mangi | Male | Matufa | Babati | +255683534922 |
| 22 | Hamisi Ipingika | Male | Matufa | Babati | +255684087519 |
| 23 | Walter mushi | Male | Matufa | Babati | +255784802631 |
| 24 | Ally Sagili | Male | Matufa | Babati | +255684488890 |
| 25 | Roza Rashidi | Female | Mlali | Kongwa | +255755109853 |
| 26 | Kuruthumu Salim | Female | Mlali | Kongwa | +255765812186 |
| 27 | Lucy Martin | Female | Mlali | Kongwa | +255767656572 |
| 28 | Christina Joseph | Female | Mlali | Kongwa | +255767376758 |
| 29 | Rehema Isaya | Female | Mlali | Kongwa | +255753755340 |
| 30 | Christina Mkoy | Female | Mlali | Kongwa | +255686979493 |
| 31 | Rehema Kaulule | Female | Mlali | Kongwa | +255769261603 |
| 32 | Sharaha Majaliwa | Female | Mlali | Kongwa | +255759547261 |
| 33 | Maria Mguji | Female | Mlali | Kongwa | +255754549634 |
| 34 | Marium Saimoni | Female | Mlali | Kongwa | +255752766581 |
| 35 | Philemoni Mwijumbe | Male | Mlali | Kongwa | +255753219909 |
| 36 | Moshi Maile | Male | Mlali | Kongwa | +255759625178 |
| 37 | Ramadhani Ngiriye | Male | Mlali | Kongwa | +255755818599 |
| 38 | Hassan Bira | Male | Mwanya | Kiteto | +255683991025 |
| 39 | Bilali Mohamed | Male | Mwanya | Kiteto | +255682223362 |
| 40 | Afsa Kimolo | Female | Mwanya | Kiteto | +255785909184 |
| 41 | Mohamed Ally | Male | Mwanya | Kiteto | +255692924511 |
| 42 | Fatuma Ismail | Female | Mwanya | Kiteto | +255688257298 |
| 43 | Stela Lucka | Female | Mwanya | Kiteto | +255788335884 |
| 44 | Said Bira | Male | Mwanya | Kiteto | +255688257298 |
| 45 | Abdala Selemani | Male | Mwanya | Kiteto | +255783485451 |
| 46 | Juma Mzila | Male | Mwanya | Kiteto | +255682630746 |
| 47 | Godfrey Kingu | Male | Mwanya | Kiteto | +255784496400 |
| 48 | Kamba Juma | Male | Mwanya | Kiteto | +255786035952 |
| 49 | Malogo Zuberi | Male | Mwanya | Kiteto | +255688795152 |
| 50 | Imamu Iddi | Male | Mwanya | Kiteto | +255783362469 |
| 51 | Amimu Hassani | Male | Mwanya | Kiteto | +255685044200 |
| 52 | Asha Kiboko | Female | Mwanya | Kiteto | +255689283173 |
| 53 | Rama Kiboko | Male | Mwanya | Kiteto | +255787842402 |
| 54 | Mauridi Hassani | Male | Mwanya | Kiteto | +255683826614 |
| 55 | Asha Malogo | Female | Mwanya | Kiteto | +255785360571 |
| 56 | Mohamed Kaita | Male | Mwanya | Kiteto | +255683613509 |
| 57 | Halidi Mkani | Male | Mwanya | Kiteto | +255686750396 |
| 58 | Shamila Iddi | Female | Mwanya | Kiteto | +255786035952 |
| 59 | Shaibu Madudulpo | Male | Mwanya | Kiteto | +255688257298 |

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| **Appendix 5: GROWTH RECORDS** | | | | | | | | | | | | |
| **Farmer's name……………….VILLAGE……………………District…………..**  **Coordinates…………………………….………Phone……………………………..** | | | | | | | | | | | | |
| Date of measurement | | | |  |  |  |  |  |  |  |  | |
| Chicken’s ID | Sex |  | Brooding system | Initial weight | wt at 1wk | Wt at 2wk | Wt at 3wk | Wt at 4wk | Wt at 5wk | Wt at 6wk | Remarks | |
|  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  |  |  |  |  |  |  |  | |
| Where ‘w’=weight, ‘wk’=week | | | | |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- |
| **Appendix 6: MORTALITY RECORDS** | | | |
| **Farmer’s name………………………………………… Village……………………………… Coordinate………………………… ………………………… Phone……………………………….**  **Feeding system……………………….** | | | |
| **Number of chicks at the start of experiment ……………………………….**  NB: Each raw should stand for one event of death for a respective chick | | | |
| **Date of death** | **Chick ID** | **Cause of death (Disease/predator/accident/lost** | **Symptoms if death is due to disease** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Appendix 7: COST RECORDS**  **Farmer's name…………………………VILLAGE…………………District……………………...**  **Coordinates……………….…….… ……………….………Phone……………………………..**  **Feeding system……………………………………………..**  **Initial cost……………………** | | | | | | | |
| Date | Number of birds | Quantity of feeds prepared | Costs for the prepared feeds | Treatment cost | Brooding cost | Other costs (Specify)  Remarks |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |